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NON-DISCLOSURE AGREEMENTS

In the process of gathering data for this report, the Federal Bureau of Investigation (FBI) was provided access to significant amounts of information considered proprietary by solution providers[1] and carriers. This information was, and is, vital to the FBI's ongoing efforts to work cooperatively with the telecommunications industry on the development of a CALEA solution. The FBI is very sensitive to concerns expressed by industry regarding release of this data to outside parties, and has signed non-disclosure agreements that limit the release of any proprietary information.

Citing those non-disclosure agreements, some solution providers have required that certain proprietary information provided to the FBI during this initiative be withheld from this report. However, solution providers have expressed a willingness to privately brief interested Members of Congress on specific technical and price feasibility as well as development schedules.

[1] The term "solution providers" refers to traditional telecommunications equipment manufacturers as well as other companies that are pursuing a CALEA solution.

I. EXECUTIVE SUMMARY

The Conference Committee Report (H. Rpt. 105-405) accompanying the 1998 Justice Appropriations Act (P.L. 105-119) directs the Department of Justice (DOJ) to submit to the Committees on Appropriations a report that includes (1) cost estimates for development and deployment of the proposed CALEA solution; (2) a timeline for development and deployment of the solution; and (3) two signed cooperative agreements with appropriate telecommunications carriers and/or equipment manufacturers. These requirements were the result of a meeting called by Chairman Harold Rogers, House Appropriations Subcommittee for the Departments of Commerce, Justice, and State, on October 22, 1997, and attended by representatives of the DOJ, FBI, and the telecommunications industry to discuss the status of CALEA implementation.

This report describes the substantial progress made to date in response to the Conference Committee Report. In so doing, the report provides a snapshot of ongoing FBI and industry CALEA implementation efforts. Information exchanged as a result of this initiative has greatly assisted all parties as they continue to work toward development and deployment of CALEA solutions. At the conclusion of an October 22, 1997 meeting with representatives of law enforcement and the telecommunications industry, DOJ set out to achieve the following goals by January 4, 1998:

1. Assess the technical feasibility of certain CALEA capability requirements (punch list), and determine the price of those capabilities
2. Obtain two signed "cooperative agreements"
3. Obtain a timeline for possible CALEA solution deployment.

Status

In response, the FBI assigned teams of personnel, including representatives of state and local law enforcement, to specific solution providers to expand ongoing technical and price discussions and enter into cooperative agreements if appropriate. Teams were assigned to Nortel, Lucent Technologies (Lucent), Siemens Telecom Networks (Siemens), and Motorola Cellular Infrastructure Group (CIG) due to the significance of their switching platforms to law enforcement. Additionally, the FBI pursued discussions with Bell Emergis, a company developing a network-based CALEA solution. Several telecommunications carriers were also approached to aid law enforcement in interpreting solution information and providing network impact assessments. Continuing on efforts begun in July 1997, the FBI held over 20 substantive technical and business meetings with members of industry between November 4, 1997 and December 15, 1997 (see Appendix A). CALEA implementation has reached a point where:

- Certain solution providers are expected to make available specific switch-based

and network-based CALEA solutions in 1998:[2]

- One major carrier anticipates testing a network-based CALEA solution in early 1998;
- Solution providers participating in this initiative have the technical ability to meet the intent[3] of nearly all CALEA capability requirements;
- Agreements for continued cooperation between industry and law enforcement are in place. Additional agreements are expected in the coming weeks.

As a result of these efforts, a clearer picture of CALEA's technical feasibility, potential solution prices and deployment timelines has emerged. Law enforcement and solution providers now have a shared understanding of the technical feasibility of a switch-based CALEA capability, yielding significant benefits to all parties. For example, Nortel stated that this understanding may result in a 25 percent reduction in the level of the development effort that was previously estimated. This solution includes the punch list capabilities. These discussions have also allowed switch manufacturers to provide law enforcement with more detailed estimates of solution prices and deployment timelines.

Additionally, the FBI continues to have very promising discussions with Bell Emergis, a company pursuing a network-based CALEA solution. Bell Emergis claims to have completed development of a CALEA solution that meets most of CALEA's capability requirements. Bell Emergis has proactively sought to establish contact with the carrier community, and the initial response from various carriers has been encouraging. The company intends to have its solution available to carriers in the second quarter of 1998, before the October 25, 1998 capability compliance date. The FBI is currently analyzing the product's technical and fiscal feasibility.

The following table summarizes the information provided by industry during the preceding two months. In addition to the solution provider data presented below, GTE, a carrier, has forwarded a signed cooperative agreement detailing the conditions under which it will continue to provide assistance to the FBI. The FBI expects to use this proposal as the basis for further negotiation with GTE.

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[2] A more complete description of the differences between switch-based and network-based CALEA solutions is provided in section III.

[3] Solution providers have either confirmed the ability to meet the CALEA capability requirements or supply the equivalent information by alternative means.

Solution Provider	Technical Feasibility	Price Estimate	Solution Availability	Agreement Status
Motorola EMX-2500, 5000	Partial	*	*	Draft AIP† received by the FBI
Lucent 5ESS	Yes††	*	3Q1999	None
Siemens EWSD	Partial	*	Two phases 1Q2000 -1Q2001	None
Nortel DMS-100	Partial	*	Two phases 4Q1998 - 2Q2000	Pending
Bell Emergis	Partial	Estimate supplied (see page 13)	3Q1998	Signed MOU††† received by the FBI

* Information made available to the FBI, but covered under existing non-disclosure agreements with industry. Data has been withheld from this report at the manufacturer's request.

† Agreement in Principle (AIP): Written agreement between parties to continue working toward development of a solution.

†† At the request of the manufacturer, no face-to-face meetings have been held to date between Lucent and the FBI to confirm technical feasibility.

††† Memorandum of Understanding (MOU): Written agreement between parties to continue working toward development of a solution.

A distinction can be drawn between solution providers' partial ability to meet CALEA's capability requirements and its ability to meet the intent of those same requirements. In some cases, individual switch designs and architectures constrain solution providers' ability to fully meet CALEA's capability requirements. According to solution providers, the technical obstacles for some switches are so severe that the provision of certain CALEA capability requirements is either technically infeasible or cost prohibitive. In these cases, the FBI has noted the solution provider as having a "partial" ability to meet CALEA's capability requirements. In other cases, technical limitations have led to discussions of alternative means of providing necessary evidentiary and minimization data to law enforcement. Where alternative methods have been identified by a solution provider, the FBI has noted that the solution provider has the ability to meet the "intent" of CALEA's capability requirements.

Price and technical information has afforded the FBI greater insight into when and how much money may be required from the Telecommunications Carrier Compliance Fund (TCCF). It is anticipated that this information flow will continue as solution providers proceed through their normal business processes, allowing the FBI to more accurately estimate fiscal year reimbursement needs. In fact, Nortel has told law enforcement that the first phase of their switch-based CALEA solution may be available for purchase by carriers as early as the third quarter of 1998.

Additionally, Bell Emergis has indications that several carriers are very interested in its network-based solution. The FBI has been approached by one carrier to participate in testing the Bell Emergis solution in early 1998. At the request of the carrier, its name is being withheld from this report. Should these solutions prove to be CALEA-compliant and reasonable in cost, the FBI could begin the reimbursement process during Fiscal Year (FY) 1998.

II. INTRODUCTION

As the end-user of the CALEA solution, law enforcement has a great deal at stake in ensuring the necessary functionality of any developed solution. The evidentiary information obtained through electronic surveillance is critical to preserving the safety and security of the American public through the apprehension and successful prosecution of criminals. A solution that does not meet CALEA capability requirements puts at risk evidentiary information required by law enforcement and prosecutors to obtain a conviction in a court of law.

Despite law enforcement's dependence on the functionality of a solution, section 103 of CALEA prohibits law enforcement from requiring specific solution requirements. Additionally, unlike traditional government procurement efforts, law enforcement is unable to influence a specific solution price. Rather, CALEA is a reimbursement effort, with law enforcement as the entity for evaluating proposed solutions, determining the reasonableness of any price and reimbursing industry for certain eligible CALEA costs. Law enforcement's role throughout the design, development and deployment of a CALEA solution is twofold: first, to assist industry in its understanding of law enforcement's electronic surveillance capability requirements; and second, to evaluate any solution's technical feasibility and cost effectiveness.

In an attempt to move the CALEA implementation process forward, Chairman Rogers met with representatives of the telecommunications industry and law enforcement on October 22, 1997 to discuss several outstanding issues regarding CALEA's implementation. At the conclusion of the meeting, Chairman Rogers requested that DOJ and industry work together to provide the Appropriations Committee with CALEA solution cost and schedule information by January 4, 1998.[4] The Conference Committee Report (H. Rpt. 105-405) accompanying the 1998 Justice Appropriations Act formalized these requirements into a request for a report. In accordance with the Conference Committee Report, the FBI worked with solution providers and carriers in a cooperative effort to achieve the following specific goals, summarized below:

Prepare per-platform technical feasibility studies for CALEA capabilities, including punch list items, to aid in determining price

The FBI worked with solution providers to obtain a shared understanding of the technical feasibility of CALEA capability requirements. Once complexity and technical feasibility were better understood, a level of effort comparison to features of similar complexity was employed to estimate a CALEA solution price.

Execute two cooperative agreements with industry

The FBI sought to use the cooperative agreement initiative to accomplish two objectives: first, to create a mutually acceptable process by which solution providers and carriers could share solution price, technical and development information with law enforcement;

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[4] Pursuant to a letter dated December 31, 1997 from Assistant Attorney General for Administration Stephen R. Colgate to Chairman Harold Rogers, the Committee was advised this report would be delayed until January 26, 1998.

and second, to lay the foundation for follow-on contractual agreements for the reimbursement of carriers for the purchase of commercially available solutions.

Obtain an accurate timeline for solution deployment
Solution providers will develop and release CALEA solutions in accordance with their established business processes and cycles. The FBI has no influence over these solution provider determined development cycles. Upon obtaining a technical feasibility assessment, the FBI asked solution providers to provide product release schedules for the CALEA feature.

It is important to note that telecommunications switch manufacturers will develop the CALEA feature as they would any other feature to be included in a software release. That development process can be described as: identification of customer needs, feature functionality specification, feature development with carrier participation, testing in both a laboratory environment and as a first office application in carriers' network, and systems deployment. It is clear that some manufacturers are further along in the development process than others. Indeed, some manufacturers are well into the CALEA solution development stage, while some are still working with law enforcement to refine feature requirements. In the normal course of the development process, it is expected that more detailed technical and price information will be made available to law enforcement to make an assessment of the solution. The FBI will continue working with each individual manufacturer in an appropriate manner to move their processes forward as quickly as possible.

III. ACTIVITIES

The FBI relied on previously established working relationships with key members of the telecommunications industry to develop the information in this report. Consistent with the CALEA Implementation Plan submitted to Congress in March 1997, the FBI had established relationships with solution providers of certain prioritized switch equipment. Previous analyses of historical intercept activity demonstrated that approximately 90 percent of wireline interceptions occurred on Nortel, Lucent, and Siemens switches.[5] Motorola was identified due to its significant presence in the wireless market and its willingness to participate.

Competitive sensitivities, market positions, switch architectures and product development cycles vary widely among switch manufacturers. To maximize its efforts, the FBI developed a customized outreach approach for each solution provider. Five "Industry Teams" were formed, with each team assigned a specific solution provider with whom to continue technical and price discussions and sign cooperative agreements, if appropriate. Teams were assigned to Nortel, Lucent Technologies, Siemens, and Motorola due to the significance of their switching platforms

[5] Based on a 1996 nationwide FBI survey of law enforcement and industry electronic intercept records between January 1993 and March 1995.

to law enforcement. Additionally, discussions were also pursued with Bell Emergis, a firm developing a network-based CALEA solution.

A switch-based CALEA solution requires modifying internal switch software, and potentially necessitates hardware changes. A network-based solution does not require that a switch manufacturer make internal switch software or hardware modifications in order for the end-office switch utilized by a carrier to provide the capability requirements of CALEA. Instead, carriers choosing to employ a network-based solution must make only minor configuration changes to individual switches. These limited changes are expected to be easy for a carrier to implement and are consistent with normal carrier modifications, such as changes to switch translations (the instruction set necessary for call direction and completion). No development work on the part of a switch manufacturer would be necessary for the switch itself when network-based solutions are used.

As any CALEA solution will be deployed on networks owned and operated by telecommunications carriers, carrier perspective and input into the design, development and deployment activities is vital. Several carriers were approached to aid law enforcement in obtaining and interpreting technical and price information provided by solution providers. Additionally, the FBI sought carrier cooperation in providing, when appropriate, network impact assessments and access to lab facilities for solution testing.

Each industry team, as mentioned previously in this section, was led by an FBI Program Manager and included a representative from state and/or local law enforcement. The teams were supported by subject matter experts familiar with the technical operations of the solution providers' product line.

Technical and Price Feasibility Initiative

Once formed, industry teams contacted their respective solution provider to initiate a series of detailed technical meetings to discuss CALEA solution feasibility. During these substantive meetings, law enforcement's requirements were translated into specific switch functionalities to determine how (and whether) a capability was feasible on a given switch platform. The goal of the effort was to clarify CALEA capability requirements within the context of (and with regard to any technical constraints inherent in) each manufacturer's switch or proposed CALEA solution.

Whenever possible, where a capability presented serious technical obstacles for a particular solution, technical alternatives that provided law enforcement with the necessary evidentiary and minimization data sought by that capability were identified and evaluated. However, detailed technical alternatives for CALEA capabilities are not presented in this report due to non-disclosure agreements. After discussing CALEA's requirements for reasonableness in cost reimbursements with manufacturers, the FBI relied solely on industry-provided price estimates.

Cooperative Agreement Initiative

Concurrently with the technical feasibility initiative, the FBI approached manufacturers and carriers in order to clarify the roles and responsibilities of all parties through cooperative agreements. The FBI's main objective in signing cooperative agreements was twofold. First, the FBI sought to create a mutually acceptable process whereby industry and law enforcement could continue to share relevant cost, schedule, and technical data. Second, the agreements were intended to lay the foundation for follow-on contractual agreements for the reimbursement of carriers for the purchase of commercially available solutions.

The appropriate form and content of the cooperative agreement document had to be determined. The document needed to address the competitive sensitivities of industry, while still providing a meaningful document that committed the parties to move the process forward. To accomplish these objectives, Agreements in Principle (AIP) or Memoranda of Understanding (MOU) for solution providers and a Statement of Work (SOW) for carriers were drafted. The AIPs or MOUs committed solution providers to supply the Government with technical and price information and dates for solution availability, while the SOWs sought the carriers' perspective in interpreting technical and price data provided by solution providers. These documents were modified as necessary in response to the specific comments of each solution provider or carrier.

Solution Deployment Timeline Initiative

Solution providers were able to provide law enforcement with technical feasibility and approximate dates for solution availability. These availability dates vary depending on how far a solution provider has progressed in its solution-development cycle (see Appendix B). Since carriers cannot begin their deployment process until a solution is available, these individual variations will influence the timeline for CALEA deployment. In several cases, manufacturers plan to release their CALEA solutions over multiple software product releases.

IV. RESULTS

Varying levels of industry cooperation and the presence of non-disclosure agreements have impacted the level of detail and quantity of information provided in this report. Some solution providers were very receptive to the FBI's data requests, sharing detailed, per-capability technical and price data with law enforcement. Other solution providers were more reluctant to participate, providing only aggregate CALEA price and technical data. Still others provided the FBI with information, but did not allow its publication in this report.

Additionally, technical feasibility, price, and deployment timeline information presented in this report is based solely on information provided by industry. By necessity, the FBI has relied on industry to faithfully and accurately reflect CALEA's complexity and price based on solution providers' inherent knowledge of their switching platform and their carriers' network architecture.

As more carriers and solution providers become involved in the weeks and months ahead, the FBI anticipates additional data will be forthcoming from industry. As it has done in the past, when the information is made available to the FBI, appropriate analyses will be performed.

Technical Feasibility Initiative

The technical feasibility of CALEA required assistance capabilities as outlined in section 103 varies among switching platforms due to differences in individual switch architectures and solution approaches. (For a description of the capabilities missing from the current standard, i.e., punch list capabilities, see Appendix C.) Solution providers are able to characterize the relative complexity of the development of punch list items for their switching platforms. A capability characterized as easy by one solution provider may be characterized as very difficult (i.e., though not technically impossible) by another. Where technical constraints existed, face-to-face discussions between law enforcement and solution providers often resulted in the identification of technical alternatives that provided law enforcement with the necessary evidentiary and minimization assistance sought by that particular capability. As a result, technical concerns regarding CALEA's capability requirements previously considered technically difficult to develop have diminished.

It is important to note that the level of technical complexity is subject to the interpretation of each solution provider and cannot be compared with other solution providers' analyses. The following paragraphs describe solution providers' technical feasibility information permitted to be disclosed under non-disclosure agreements.

Motorola (EMX 2500, EMX 5000)

The FBI held four technical discussions with Motorola to determine technical feasibility on the EMX 2500 and 5000 cellular switching platforms. During the course of those meetings, Motorola provided the FBI with detailed technical feasibility information for its proposed CALEA solution.

Motorola assessed the punch list capability items as technically feasible with the following exceptions which they characterize as more technically difficult:

- Capability #3 - Access to subject-initiated feature key dialing and signaling
- Capability #4 - Notification Message, In-band and Out-of-band signaling
- Capability #9 - Feature Status Message
- Capability #11 - Separated Delivery.

Based on non-disclosure agreements, Motorola requested that more detailed technical feasibility information be withheld from this report. Motorola and the FBI have agreed to continue evaluating alternative methods of meeting CALEA's capability requirements.

Nortel (DMS-100 Family)

The FBI and Nortel held five technical meetings and frequent telephone calls to discuss the technical feasibility on its DMS-100 family of switches. The DMS-100 family of switches is technically capable of meeting the intent of all of law enforcement's CALEA requirements. In keeping with normal product-development processes, Nortel's CALEA solution is scheduled to be implemented in a phased approach of at least two software releases.

Nortel assessed the development effort necessary for the punch list capability items as low to moderate with the following exceptions:

- Capability #2 - Party Hold, Party Join, Party Drop Message, as described by law enforcement, is viewed by Nortel as difficult. However, Nortel can generally meet the intent of this requirement by alternative means.

- Capability #3 -Access to subject-initiated feature key dialing and signaling

- Capability #4 - Notification Message, In-band and Out-of-band signaling

- Capability #9 - Feature Status Message.

These requirements (#3, #4, and #9), as described by law enforcement, are viewed by Nortel as very difficult. However, Nortel can meet the intent of these requirements by alternative means.

- Capability #11 - Separated Delivery - This requirement, as described by law enforcement, is viewed by Nortel as extremely difficult. However, Nortel has described an alternative that law enforcement is currently evaluating.

Lucent (5ESS)

While technical feasibility information for the 5ESS was provided to the FBI, at Lucent's request, no face-to-face meetings have been held to date with the FBI as part of this initiative. Lucent's current assessment is that all CALEA capabilities are technically feasible on the 5ESS. Face-to-face technical meetings are expected between Lucent and the FBI beginning in early 1998, at which time the FBI will be better able to evaluate Lucent's current estimate of technical feasibility.

Lucent assessed the development effort necessary for the punch list capability items as low to moderate with the following exceptions:

- Capability #11 - Separated Delivery - This requirement, as described by law enforcement, is viewed by Lucent as extremely difficult.

Siemens (EWSD)

The FBI and Siemens held six technical meetings to discuss technical feasibility on the EWSD switching platform. The EWSD switch platform is technically capable of meeting the intent of all of law enforcement's CALEA requirements. Siemens does have concerns based on the technical complexity of certain capability requirements and available staff resources. These concerns have resulted in Siemens' decision to implement CALEA in a phased approach incorporating two or more software releases.

Siemens assessed the development effort necessary for the punch list capability items as low to moderate with the following exceptions:

- Capability #1 - Content of conference calls
- Capability #10 - Dialed digit extraction, as described by law enforcement, is viewed by Siemens as extremely difficult.

Siemens' rough estimate of availability of these two punch list capabilities is 2001. Based on this information, and until such time that these capabilities are developed, the FBI has noted Siemens' ability to meet CALEA's capability requirements as "partial."

Bell Emergis

Bell Emergis' network-based solution does not require the modification of each and every end-office switch. Instead, the Bell Emergis solution would operate in conjunction with the Signaling System 7 (SS7) network, which today provides inter-switch call set-up for approximately 90 percent of the access lines nationwide. Both wireline and wireless networks utilize the SS7 network in providing telecommunications service.

Since July, 1997 the FBI and Bell Emergis held numerous detailed technical meetings to assess the Bell Emergis solution's ability to meet CALEA requirements. Bell Emergis claims its solution is technically capable of meeting virtually all of CALEA's capability requirements. Bell Emergis is proactively pursuing a partnered approach with the carrier community, which it anticipates will enhance its ability to meet CALEA capability requirements. The initial response from several carriers has been encouraging. The Bell Emergis solution is expected to undergo carrier evaluation during the first quarter of 1998. Carriers have expressed an interest in involving the FBI in this process.

Bell Emergis assessed the development effort necessary for the punch list capability items as low to moderate with the following exceptions:

- Capability #3 -Access to subject-initiated feature key dialing and signaling
- Capability #4 - Notification Message, In-band and Out-of-band signaling

- Capability #9 - Feature Status Message requirement, as described by law enforcement, is viewed by Bell Emergis as beyond the capabilities of its solution. However, Bell Emergis can meet the intent of this requirement by alternative means.

As solution providers continue their normal development processes, detailed solution documentation will be produced and made available to law enforcement. These documents will allow the FBI to more thoroughly assess any solution's ability to meet CALEA capability requirements.

Price Estimation Initiative

Bell Emergis granted permission to the FBI to reveal its cost estimates. Based on non-disclosure agreements with the FBI, four other solution providers requested that CALEA pricing information not be included in a publically available document.

The same manufacturer-specific characteristics that cause variations in technical feasibility among switching platforms cause price variations. A better understanding of the technical requirements of CALEA enabled most solution providers to provide the FBI with more refined price estimates. In some cases, however, pricing information obtained by the FBI comes with an accuracy disclaimer of plus or minus 100 percent from the solution providers.[6] Furthermore, prices charged by solution providers may change depending on reimbursement strategies agreed to by industry and the Government. Those strategies include, but are not limited to, possible per-access line pricing and nationwide buy-out, (whereby the Government funds feature development or purchases the results of the development efforts directly from the vendor. The solution is then made available to all carriers utilizing the specific switch.) The FBI plans to continue its analysis of industry-provided pricing data in the coming months.

Motorola (EMX 2500, EMX 5000)

Motorola has provided the FBI with initial price estimates for a CALEA solution. Based on non-disclosure agreements, Motorola would not permit the FBI to publish CALEA solution pricing information in a publically available document.

Nortel (DMS-100 Family)

Nortel has had the most extensive technical and price discussions with law enforcement, and based on the data provided to the FBI at this time, are furthest along in the development process among switch manufacturers. Nortel believes that recent discussions with law enforcement have resulted in a 25 percent reduction in its previously estimated level of development effort. Nortel has provided the FBI with preliminary solution prices based on a nation-wide buyout of its solution for the DMS-100 family of switches, but would not permit the FBI to disclose pricing information in a publicly available document.

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[6] Lucent Technologies

Lucent (5ESS)

Lucent has provided the FBI with a "first-pass" (initial) price estimate for developing a CALEA solution. Due to its preliminary stage of CALEA solution development, Lucent stated that this price estimate had an accuracy of "plus or minus 100 percent" Based on non-disclosure agreements, Lucent would not permit the FBI to publish specific pricing information in this report. Lucent has notified the FBI that, as development work continues, Lucent will provide a more refined "second-pass" price estimate by February 14, 1998.

Siemens (EWSD)

Siemens has provided the FBI with initial price estimates for a CALEA solution. Based on non-disclosure agreements, Siemens would not permit the FBI to publish CALEA pricing information in a publically available document.

Bell Emergis

Bell Emergis' current price estimate to provide a CALEA network-based solution through-out the United States is approximately $540 million. However, upon successful completion of field trials and subject to negotiations with the carriers, Bell Emergis believes that a volume-based discount is achievable. Bell Emergis stated in a December 29, 1997 letter that, "subject to a national commitment by the wireline operating companies for deployment and full reimbursement by the Government to the carriers, the current budget estimates of $500 million is more than sufficient to meet (law enforcement's) needs."

Cooperative Agreement Initiative

The FBI has pursued Agreements in Principle, Memoranda of Understanding and/or Cooperative Agreements that reflect each participants' role in CALEA solution development. Agreements in Principle or Memoranda of Understanding with solution providers for the continued provision of necessary technical and price data is consistent with the industry's normal business process. Further, Cooperative Agreements with carriers for the analysis of proposed technical solutions and testing of those solutions in their networks are considered appropriate by the industry and law enforcement. Upon reaching agreements on CALEA solutions, the FBI anticipates that these agreements will lay the foundation for future cooperative contractual agreements for the deployment of a CALEA-compliant solution.

Motorola (EMX 2500, EMX 5000)

On December 16, 1997 Motorola CIG responded to the FBI's proposed Agreement in Principle. Motorola accepted each of the FBI's proposed clauses and proposed additional terms and conditions particular to CIG's situation. The FBI is evaluating these additional clauses and will use this document as the basis for a final Agreement in Principle.

Nortel (DMS-100 Family)

Nortel is at an advanced stage of solution development. In order to keep pace with technical progress made to date, Nortel has chosen to forego the preliminary Agreement in Principle and focus instead on pursuing contractual agreements with the Government for the actual purchase of its CALEA solution for its DMS-100 family of switches.

Lucent (5ESS)

To date. the FBI and Lucent have been unable to reach consensus on the appropriate agreement vehicle. Based on its experience with other solution providers, upcoming technical and business face-to-face meetings with Lucent are expected to facilitate a resolution of an appropriate agreement vehicle.

Siemens (EWSD)

Although no agreement has yet been signed between the FBI and Siemens, both parties have agreed to continue their technical and business discussions into the first quarter of 1998.

Bell Emergis

Bell Emergis and the FBI have signed a Memorandum of Understanding which outlines the intentions of both parties. Both agree to move forward expeditiously with information sharing, testing and other activities to facilitate the availability of a CALEA-compliant solution before the October 25, 1998 capability compliance date.

GTE

In response to ongoing discussions, the FBI received a signed Cooperative Agreement from GTE on December 23, 1997. This document includes additional conditions not in the original cooperative agreement under which GTE will continue working with the FBI to interpret manufacturer-provided technical and deployment data. The FBI and GTE are working together to resolve remaining points of difference and hope to achieve a final agreement in early 1998.

Other

One major telecommunications carrier has entered into a Letter of Intent to work with Bell Emergis to begin testing of the Bell Emergis solution in its network. The carrier, who requested that its name be withheld from this report, has requested FBI involvement in the testing process to ensure that all CALEA capability requirements are met.

Solution Deployment Timeline Initiative

CALEA solution deployment is dependent on individual solution provider product-development cycles and carrier deployment processes. As a result of technical discussions with

law enforcement, some solution providers have provided estimated dates for solution availability (see Appendix B). Solution deployment is also dependent on carrier purchase decisions, availability of TCCF funds for reimbursement, and individual carrier deployment schedules.

Law enforcement recognizes that for some switches, a CALEA solution may need to be phased in through routine switch software releases and upgrades. The realities of technical solution development and the impact of solution deployment in the network are not lost on law enforcement. Each successive software release will be vital for law enforcement, as solution providers and carriers ensure that all CALEA capability requirements are available as soon as possible. Law enforcement will continue to support the good-faith efforts of solution providers and carriers in developing a CALEA solution.

V. CONCLUSION

The preceding information provides a snapshot of ongoing CALEA implementation efforts since the October 22, 1997 meeting. The likely availability of end-office switch-based and network-based CALEA solutions in the near term is a very positive step toward meeting critical law enforcement and public safety needs. Additionally, the availability of these solutions will directly impact on the Government's need to access TCCF funds in 1998. The recent face-to-face technical discussions between law enforcement and solution providers have diminished many solution providers' concerns regarding CALEA's capability requirements which were previously considered technically difficult to develop. As a result, participating solution providers are now able to assess and develop CALEA's capability requirements in their entirety, without differentiating those capabilities referred to as the punch list. Finally, previous technical feasibility and price estimates have been replaced with more definitive assessments of solution providers' ability to provide a CALEA-compliant solution. As the FBI works with solution providers as they continue their development process, the quality and quantity of this data will improve.

The future of CALEA implementation is directly tied to continued cooperation between industry and law enforcement. For those solution providers and carriers with whom the FBI is currently working, the agreements in the past two months ensure that vital information exchanges will continue, and lay the foundation for follow-on contractual agreements for the delivery of CALEA solutions. For those industry participants who are not yet totally involved, the FBI remains committed to discussions involving a broader base of the carrier and solution provider communities. The technical feasibility, price information, and deployment timelines for the solutions identified in this report can be used as a model for additional switching platforms to move solution providers further along in their normal business process.

APPENDIX A

SUMMARY OF LAW ENFORCEMENT MEETINGS WITH INDUSTRY JULY 16, 1997 - DECEMBER 15, 1997

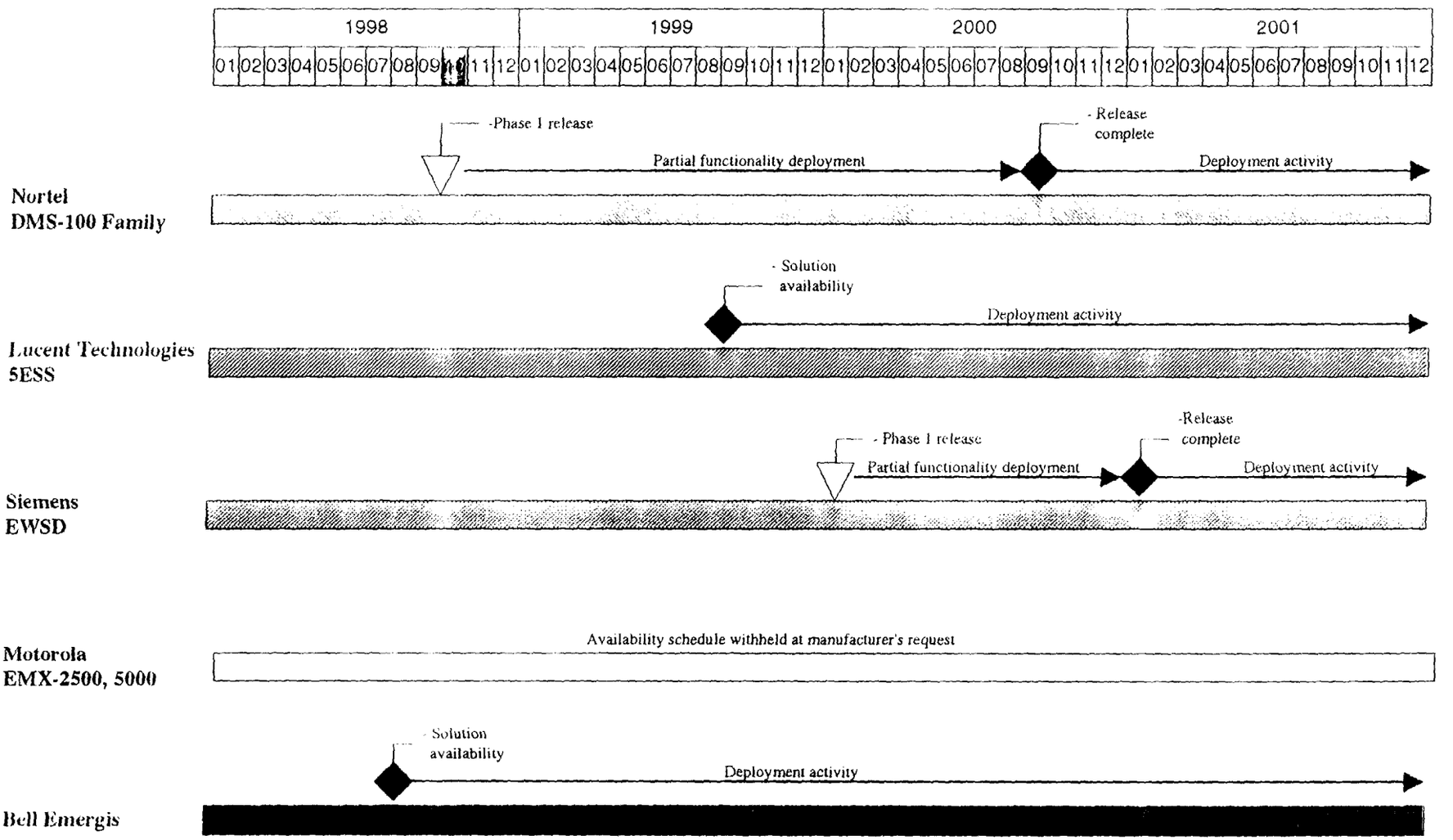
#	Date	Attendees	Purpose/Topics covered
1	7/16	FBI/Bell Emergis	Technical feasibility discussions
2	9/23	FBI/Bell Emergis	Technical feasibility discussions
3	10/7	FBI/GTE/Nortel	Cooperative Agreement/Business meeting
4	10/21	FBI/GTE/Nortel	Technical feasibility discussions
5	11/4	FBI/Bell Emergis	Cooperative Agreement meeting
6	11/10	FBI/Nortel	Technical feasibility action items discussions
7	11/12	FBI/Siemens	Communication of purpose and objectives, limitations of government contracting options and agreement on activity schedules
8	11/13	FBI/Nortel	Pricing methodology meeting
9	11/14	FBI/Motorola	Technical feasibility discussions
10	11/20	FBI/GTE	Discussions of new cooperative agreement process. Review of GTE labor and expense reporting system
11	11/20	FBI/Siemens	Technical feasibility discussions
12	11/20	FBI/Motorola	Technical feasibility discussions
13	11/21	FBI/Siemens	Technical feasibility discussions
14	11/24	FBI/Nortel/GTE	Technical feasibility discussions and capacity issues
15	11/25	FBI/Motorola	Teleconference to continue technical feasibility discussions
16	12/2	FBI/GTE	Teleconference to discuss Cooperative Agreements
17	12/2	FBI/Siemens	Continuation of technical feasibility discussions
18	12/3	FBI/Siemens	Continuation of technical feasibility discussions
19	12/3	FBI/Siemens	Discussion of comparable items for price estimation
20	12/5	FBI/Siemens	Teleconference to discuss technical feasibility

#	Date	Attendees	Purpose/Topics covered
21	12/8	FBI/Bell Emergis	Discussion of price and deployment issues
22	12/9	FBI/Bell Emergis	Technical feasibility discussions
23	12/10	FBI/Motorola	Technical feasibility discussions
24	12/10	FBI/Bell Emergis	Technical feasibility discussions
25	12/11	FBI/Motorola	Technical feasibility discussions and business meeting to discuss price comparables, deployment timelines and process information
26	12/12	FBI/Major carrier†	Teleconference to discuss cooperative agreement
27	12/15	FBI/Ameritech	Teleconference to discuss technical feasibility

* At the request of Lucent Technologies, no face-to-face meetings were held between the FBI and Lucent during the time period of this initiative. Information exchanges occurred via facsimile and phone.

† At the request of the carrier, its name has been withheld from this report.

SOLUTION AVAILABILITY TIMELINE



Note: Actual solution deployment is dependent on carrier purchase and deployment processes

APPENDIX C

BRIEF DESCRIPTION OF PUNCH-LIST CAPABILITIES

Number	Name	Description
1	Content of subject-initiated conference calls	Capability would enable law enforcement access to content of conference calls supported by the subject's service (including the call content of parties on hold).
2	Party Hold, Join, Drop	Messages would be sent to law enforcement that identify the active parties of a call. Specifically, on a conference call, whether a party is on hold, has joined or has been dropped from the conference call.
3	Access to subject-initiated dialing and signaling	Access to all dialing and signaling information available from the subject would inform law enforcement of a subject's use of features. (Examples include the use of flash-hook, and other feature keys).
4	In-band and out-of-band signaling (Notification Message)	A message would be sent to law enforcement when a subject's *service* sends a tone or other network message to the subject or associate. This can include notification that a line is ringing, or busy.
5	Timing to associate call data to content	Information necessary to correlate call identifying information with the call content of a communications interception.
6	Surveillance Status Message	Message that would provide the verification that an interception is still functioning on the appropriate subject.
7	Continuity check (C-Tone)	Electronic signal that would alert law enforcement if the facility used for delivery of call content interception has failed, or lost continuity.
8	Standardized delivery interface	Would limit the number of potential delivery interfaces law enforcement would need to accommodate from the industry.
9	Feature Status Message	Message would provide affirmative notification of any change in a subject's subscribed-to features.
10	Dialed digit extraction	Information would include those digits dialed by a subject after the initial call setup is completed.
11	Separated delivery	Each party to a communication would be delivered separately to law enforcement, without combining all the voices of an intercepted (conference) call.

CERTIFICATE OF SERVICE

I, Cleveland Lawrence III, hereby certify that on the 11th day of February, 1998, I caused copies of the foregoing "Reply Comments of the Cellular Telecommunications Industry Association" to be sent by first class mail, postage prepaid, or by hand delivery (*), to the following:

Carolyn G. Morris
Assistant Director
US Department of Justice
Federal Bureau of Investigation
J. Edgar Hoover Building
935 Pennsylvania Avenue, NW
Washington DC 20535

*Dan Phythyon
Chief
Wireless Telecommunications Bureau
Federal Communications Commission
2025 M Street, NW Room 5002
Washington DC 20554

Cleveland Lawrence III